Commentor Information: **Robert H. Owen, Jr., P.E.**
Consulting Engineer and Meteorologist
1311 Middleton Street
Middleton, WI 53562
608-831-6150
rowen@chorus.net

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VIA ELECTRONIC REGULATORY FILING

TO: Ms. Donna Paske, Secretary
Public Service Commission of Wisconsin

Re: Comments on the draft WOW Report PSCW Docket No. 05-EI-144

My comments fall into three categories: (1) plaudits for the leaders and citizens involved in the effort; (2) my perspective on the important role of offshore wind in the state's future clean energy supply; and (3) my concern that the draft WOW Report does, unfortunately, exaggerate the costs of offshore development.

Plaudits

Kudos to Governor Doyle for establishing the Global Warming Task Force in 2007 and heeding the groups' recommendation to take a hard look at offshore wind development in Lakes Michigan and Superior. I think Wisconsin stands to benefit economically and environmentally from pursuit of offshore wind energy. Governor Doyle deserves credit for seeing the potential economic opportunities behind the challenge of reducing carbon dioxide emissions. Nowhere are these potential opportunities greater than in the field of offshore wind energy. Wisconsin is not only well positioned to use offshore wind energy; it is well positioned to manufacture some of the key technologies for implementing and installing offshore wind turbines here and elsewhere on the Great Lakes.

Great credit is also due to Commissioner Lauren Azar of the PSC for her management of the Wind-on-the Water ("WOW") Study. This has been an extremely ambitious, challenging, effort, attempting to meld the contributions of many individuals from a number of fields into a large report in a very compressed time frame. Commissioner Azar's good-humored efficiency in moving this potentially unwieldy process along has been impressive.

Also impressive to me has been the sheer amount of work done by the subgroups. In some cases relying on volunteer labor, subgroups have generated very substantial amounts of valuable information in very short periods of time. Even where group participants have been paid for their work, that work has in effect represented a substantial donation to the effort from their employ-

ers. For example, I observed that Madison Gas and Electric Company made a very substantial contribution of engineering time to the effort, a contribution dwarfing that of much larger utilities involved in the same engineering subgroups. With as many as three engineers working on the WOW Study at various times, MGE deserves recognition for its support of the effort. Numerous other groups and individuals made valuable contributions.

That Wisconsin is able to throw together such a capable, diverse, group and produce an intelligible report containing much valuable information in such a short time says good things about our state and the willingness of our fellow citizens to work together to tackle environmental problems.

It is precisely because, given wise leaders like Gov. Doyle and Commissioner Azar who wish to address problems, Wisconsinites are good at working together to solve environmental problems that I am confident that we will make great strides in combating global warming by developing offshore wind energy in Wisconsin's Great Lakes in the next decade.

Offshore Wind–a Vital Leg to Wisconsin's Four-legged Wind Stool

When it comes to clean electricity, I believe that, to a large degree, it is just like Peter, Paul and Mary said: "the answer is blowin in the wind." But, at any given location, there are times when the wind is not blowing much at all, and "no power" is not the answer most of us are looking for. That is true in inland Wisconsin, in the middle of Lake Michigan, and on a wind-swept ridge in North Dakota. But, fortunately, the calm times tend be different at those different locations. This is why, to use wind on a much larger scale, we need to use wind resources from a variety of places connected to each other by a greatly strengthened electric grid. We need to take advantage of the natural diversity of wind, the tendency for light-wind high-pressure areas to pass at different times, at widely separated locations.

Currently, we generate a few percent of our electric energy consumption from wind farms. But, in theory, we could generate a much higher percentage, perhaps even over 50 percent, from clean wind farms. To rely so heavily on wind, we would need each of the following four elements:

(1) Wisconsin inland wind, from small turbines at homes and businesses to community wind projects and wind farms;
(2) Great Plains wind farms, largely in Minnesota, Iowa, and the Dakotas;
(3) Greatly strengthened electric grid ties to the Great Plains, to Illinois, and to Michigan; and
(4) Wisconsin offshore wind farms, especially on Lake Michigan.

Great Plains wind and stronger transmission ties are inseparable. We can't have the former without the latter. When we have improved grid ties to the plains and wind farms serving Wisconsin on both the plains and the lakes, regional wind will become more of a reliable base load resource

to keep the lights on in Wisconsin. Great Plains and Great Lakes winds are naturally diverse. They tend not to ebb simultaneously. Great Lakes wind is an important reliability prop–a vital leg–of the four-legged stool that would support a huge increase in reliance on wind in Wisconsin's electric system. Combining robust transmission with such far-flung geographic diversity and offshore wind would allow Wisconsin to replace as much as half of its electric generation with wind generation in the next few decades. If we would not use offshore wind, we would not be able to achieve as high a penetration of wind because the diversity of the system would be less.

Squelch the Exaggerated Costs

While I am pleased with much of the WOW Study Report, I am considerably less pleased with its discussion of costs of offshore installation and operation. In this area, I believe that the time schedule and composition, dynamics, and leadership of one of the engineering subgroups produced a near perfect storm of cost exaggeration. This exaggeration is manifested in discussions of capital and operating costs of offshore wind at pages 44, 46, 47, 50, and 51 of the draft.

The engineering subgroup exaggerated the cost of shallow water and deep-water installations. Its estimates for deep water installations transcend mere exaggeration. They are completely ludicrous, devoid of any conceivable engineering justification. Its estimates for operating costs are also wildly excessive.

The composition of the subgroup was problematic in that it was composed basically of PSC spokespersons, planners and lobbyists for utilities objecting to offshore development (all of whom favored exaggerated costs); utility engineers with no prior experience in costing offshore wind projects and no time to spend in addressing likely Wisconsin costs; and yours truly. I was the only person in the subgroup with much interest in the cost issue.

The subgroup was chaired by a non-engineer planning director for a utility (ATC) who appeared bored with the subject of costs and not to understand the cost contentions I advanced and displayed consistent impatience with my suggestions to scale costs of deep water development based on depth scaling appropriate to the different foundation technologies likely to be used in deeper waters.

Other engineers did not submit their own cost justifications for their cost estimates, other than by general references to generally mis-characterized costs from non-comparable European projects. The imperious time schedule and summer vacations probably precluded most of the engineers from delving further into costs. It was easier for the utility folks to deal with costs by steamrollering my objections and getting on with their summer vacations.

The dynamic of the subgroup on the subject of costs was also questionable, in that proponents of high costs were not required to justify their costs in any way. The group simply adopted

"seat-of-the-pants" gross estimates without justifying any of them. The group did not build cost estimates by costing major components and adding up the components. The group did not generate technology-specific estimates for moderate depth or deeper-water technologies that are getting serious attention at deeper sites in Texas (Titan Platforms) and Europe (OWEC Jackets) recently. Both of these technologies appear to be competitive for current projects in moderate depth and deeper waters. It is likely that projects using either would be less costly than the draft projects.

In short, the cost estimates of the draft report are not supported or supportable and should be replaced by lower estimates such as those advanced by the undersigned in objecting footnotes.

We will not advance offshore wind energy in Wisconsin by exaggerating its costs.

/s/Robert H. Owen, Jr.
Robert H. Owen, Jr.

I affirm that these comments are true and correct to the best of my knowledge and belief.

Robert H. Owen, jr.